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(54) MOULDED FASCIA SURROUNDS

(71) We, BRITISH LEYLAND U.K. LIMITED, a British Company of Leyland House, 174 Marylebone Road, London, NW1 5AA (formerly of Berkeley Square House, Berkeley Square, London, W1X 6DL), do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to fascia surrounds, for use on vehicles, moulded from a plastics material and concerns particularly fascia surrounds that are injection moulded from thermoplastic materials or, alternatively, moulded from thermosetting materials.

Suitable thermoplastic materials include polycarbonate, polyurethane, nylon, polypropylene, acrylonitrile butadiene styrene terpolymer, modified polyhexylene oxide styrene acrylonitrile copolymer and the lightly cross-linked thermoplastic rubbers currently manufactured as ethylene propylene (diene monomer) terpolymer modified polypropylene and may include fibrous reinforcement, and suitable thermosetting materials include, for example, glass reinforced polyester resin dough moulding compounds.

Tests on head form impact, for example as specified in U.S. Federal Regulation FMVSS 201, have shown that, whilst vehicle structures involving fascia surrounds moulded from relatively brittle materials can provide the required deceleration, the surrounds tend to fracture in an unacceptable manner allowing headform penetration through the broken surround. It has been concluded that in such instances headform deceleration is effected by the steel bodywork superstructure. It has been proposed to fill the back of such a surround with polyurethane foam to limit fracturing but although such an arrangement has been used it has been found that in many cases unacceptable fracturing can still occur. On the other hand, in the case of surrounds moulded from relatively ductile materials, such as thermoplastic rubbers, the surround may not provide the required deceleration.

According to this invention a fascia surround moulded from a plastics material has a reinforcing member or members bonded to its rear face, in at least those regions that might be subject to occupant impact, by an adhesive that has elastic and energy damping characteristics.

It has been found that a reinforcing member so bonded to a moulded surround can prevent unacceptable fracturing in the case of the above relatively brittle materials presumably because of the elastic and energy damping characteristics of the adhesive in combination with the reinforcing members which remain in position and so prevent excessive headform penetration even if the surround itself cracks when impacted by the headform.

The configuration of the reinforcing member or members depends on the geometry of the fascia area and the areas thereof that are likely to suffer impact; however, the member or members may conveniently be formed of steel, which advantageously should be zinc coated, and may comprise a steel pressing or steel tubes and/or bars, which may be formed to substantially follow the contours of the surround moulding which require reinforcement.

A fascia surround moulded from a plastics material and having reinforcing members bonded to its rear face as provided by the invention will now be described by way of example with reference to the accompanying drawings in which

Figure 1 is an elevational front view of a fascia surround according to the invention;

Figure 2 is a cross sectional view of the fascia surround shown in Figure 1 taken on the line 2—2; and

Figure 3 is a similar cross sectional view taken on the line 3—3.

Reinforcing members comprising a zinc plated mild steel tube 11 and a similar rod 12 are bent to the required shape as shown in Figure 1, and the members are cleared and treated with a surface adhesion primer.

The fascia 13 is injection moulded from a modified polyphenylene oxide, and the

areas that are to be adjacent the reinforcing members are thoroughly cleaned.

5 The fascia 13 is then mounted in a jig, and an adhesive bead of heat-curable neoprene containing a heating wire 14 is placed in position and the reinforcing members 11 and 12 are clamped in their respective positions in the jig such that the members 11 and 12 are adjacent the rear face of the fascia 13. A suitable adhesive bead is currently commercially available under the trade name "SOLBIT".

10 An electric current is then passed through the heating wire 14 for four minutes to activate the curing mechanism and ensure sufficient chemical cross-linking and adhesion for the reinforcing members 11 and 12 to be permanently bonded to the rear face of the fascia 13. Further cross-linking takes place after cessation of the electric current and removal from the jig, the rate being determined largely by the ambient temperature.

WHAT WE CLAIM IS:—

25 1. A fascia surround moulded from a

plastics material which has a reinforcing member or members bonded to its rear face, in at least those regions that may be subject to occupant impact, by an adhesive that has elastic and energy damping characteristics. 30

2. A fascia surround as claimed in Claim 1 in which the fascia is an injection moulding formed from a thermoplastics material.

3. A fascia surround as claimed in Claim 2 in which the thermoplastics material is relatively brittle. 35

4. A fascia surround as claimed in any one of the preceding Claims in which the or each reinforcing member is formed of zinc coated steel. 40

5. A fascia surround substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings. 45

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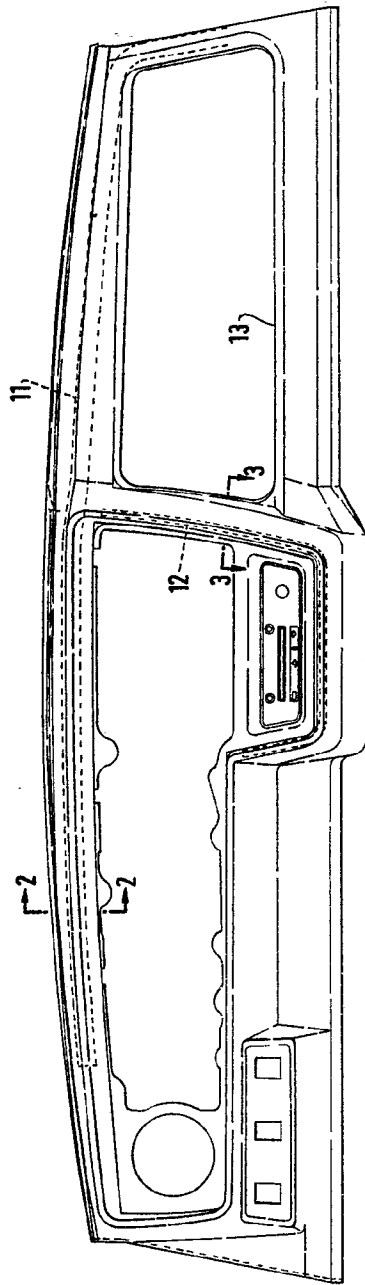


FIG. 1.

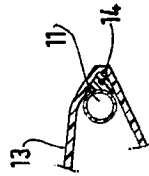


FIG. 2.

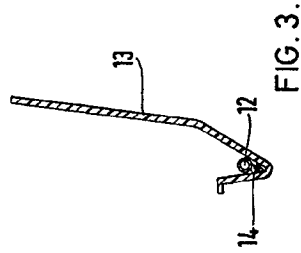


FIG. 3.